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BY

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OF

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This writing is respectfully inscribed to Paul T. Eve, Professor of Surgery, in the Nashville Medical College, by the author, as an humble token of the great respect and admiration he has of his qualities which have placed him in the front rank of his profession, and of the love he bears him for the unvarying kindness that has fixed him first in the affection of his pupils.
Tetanus.

Tetanus is a disease of the nervous system, characterized by a severe and rigid contraction of a part or the whole of the voluntary muscles.

It is divided, first, into traumatic and idiopathic. Secondly, into tetanus, hystero-thenos, euprovatholong, hynroucholos, and tetanus proper.

As to the first division, Erichsen says that the idiopathic variety is seldom met with; hence he regards this division as useless.

We shall begin our description of this disease by examining the phenomena common to every form and variety of the disease, including in this general description, an account of tetanus, as this is con-
...sided, by the best writers, as a part or feature of each variety.

The approach of tetanus is sometimes announced, but generally, the patient feels an indescribable sensation of fear and a sense of impending evil. The disease is recognized when the patient feels what he calls a cramping in the back of the neck, together with a dry, sore throat and difficulty of swallowing. Very soon we observe the closure of the jaws, which sometimes come together suddenly and with an audible snap—sometimes the approach by stages and remain so fitted that it is impossible to separate them; this is never attempted, for the reason that, if separated, neither
food nor drink can be swallowed, nor count of the capacity of the muscles of the Pharynx; or if the patient does swallow any liquid or solid, it is so complicated with so much pain and annoyance, afterwards, the sight of any thing to swallow causes as much pain as the act of deglutition itself. Sometimes, the teeth are slightly separated and a dark-colored, foul and thickened saliva escapes. These are the most prominent symptoms of Rianus or docked jaw, which symptoms are recognizable in all the other forms of Lepturus, with the addition in each, of a more extended surface.

When we have any other form of the disease, we may first see a
clearly defined case of tetanus, then we have a sharp, agonizing pain in the region of the Diaphragm; at this time the body, and extremities become contracted in various ways: the face is flushed until purple: the muscles of the face are contracted in such a manner as to produce a grim, blood-chilling smile. The 'Risus Sardonicus'. The contraction of the muscles of the Thorax gradually increases until there is a degree of oppression painful to behold, by the continuance of which, the death of the patient is brought about. It is wonderful what a degree of self-possession, cheerfulness, and clearness of mind there is in these cases. The case would lose a part of its
horror, if the patient were saving in de!

The patient is not aware of the pain,

but it is extremely pain ful to see the drowned man calm,

and even cheerful, while his

patriarchal family are silently

weeping around, knowing him to be

in the most intense agony.

The functions of the different

organs are variously affected -

the circulation is partially clogged by

the muscular contractions, according

to several prominent authors.

The heat of the skin is generally in-

creased; this is caused, say Sir

Brodie and others, by the diseased

state of the spine, which is proved

by experiments upon inferior animals.

The perspiration is excessive, and
continued and has a peculiar, pungent odor. The urine is unaltered in quantity, though often high-colored. This seems to be a remarkable sign of tractability in the intestines, which is present in almost every case. When an operation is obtained, it is dark-colored, unnatural and very offensive.

Generally, in from twenty-four to thirty-six hours, in acute cases, the disease prevents the patient from swallowing at all.

"In the progress of the disease," says Robert Drangford, "we often see an apparent emaciation. The form of the muscles becomes distinctly visible through the skin, and their rigidity increases." As death approaches, a dark, thick fluid, composed of
blood, mucus and saliva, exudes from the mouth; the face becomes more and more distorted—dry, cold sweat stands in heavy beads like drops, over the whole body—the pain of the patient is increased by the slightest emotion, by the increase of the fever. The difficulty of breathing, already terrible, is indeed insupportable—the pulse dies away and the patient is dead.

Writers are not agreed as to the duration of the disease. Hippocrates says, in one place, four days—in another, he says the third, fifth, seventh or fourteenth may be the fatal day. Mons. Andral considers four or five days to be the average duration—Fournier-Resca says that it is a sure thing to see leprosy terminate so late.
as the seventh day.

It is generally the case, as before stated, that the patient dies in the way of a spasm. This is the opinion of a majority of authors, but Parry and Howship think that "the heart, surprised by the long continued agony and perhaps involved in the prevalent affection of the muscular parts, has at least an equal share in the production of the fatal event." Robert Dunglison agrees to this opinion. "Rare in whatever manner death is brought about," says Arellus, "it is an event happy to the tortured patient and gladly hailed by his friends. Far less calamitous is it than his previous sufferings, in the estimation of the bystander, even if he be the victim, own son or father."
The variety of this disease most frequently met with in Osteothalamos, the characteristic feature of which is the arching backwards of the neck or the whole body. The muscles of the back of the neck are so rigidly contracted that the head is drawn down upon the nuchal and the larynx thrown forwards. In some cases this is the sole feature of the disease; but more frequently the muscles of the spine are affected by the sphenoid, and the whole body forms an arch, the extremities of which are the vertex and sacrum. The inferior extremities are extended. The arms are nearly extended, but sometimes are bent across the breast and the hands are clenched together, or when, as is usual,
The fingers are unaffected by the spasm. The hands are folded as in prayer. The Abdominal paroxysms are as on the stretch," says Arétousas, "that they are hard as a board and common when pursued."

The variety, Empysematoma, the opposite to the variety last mentioned, and Pleurosthotonos, the distinguishing feature of which is the arching to one side of the head, back and body, are seldom met with and little spoken of by writers, and deserve no particular notice here.

The last variety we shall mention is the True Tetanus, in which the whole body is rigidly extended. It consists of a spasmodic action.
which attacks the flexor and extensor muscles with equal force — or, in other words, there is balance between the forces of flexion and extension. This variety is easily recognized, having the symptoms described above as common, only differing from the other varieties in the spastic action affecting equally the flexor and extensor.

The common occurs of Creation, as well as man are subject to this disease.

It has been seen, by some writers of distinction, in Poultry, Horses and Lambs.

We shall now, with as much brevity as is possible, consider the causes that bring about the morbid phenomenon we have attempted to describe. At the head of the list stands Mechanism.
injuries. We cannot specify what kind of wound will, in most cases bring on an attack. As is distinctly stated by several distinguished writers, an attack may follow from any wound, be it an amputation or the scratch of a pin. "Every description of wounds, says Symonds, no matter how inflicted or in what part, or in what claw, may be the occasion of Letanic symptoms, which form the species denominated Traumatic."

The next on the list of causes we find Exposure to Cold and damp. Symonds says, "There are very few cases of true idiopathic Letanic, that can be referred to any other exciting cause."

Worms in the intestinal canal, it is contended, are the cause of very many attacks of Letanic. There are many
other causes enumerated by Dr. Symonds who has collected the opinions of all the most prominent authors of this and the earlier ages upon this subject, among which he gives as occasional causes: Terror; mental anguish; the excitement following Abortion; sudden cessation of Respiration; the accumulation of foreign or indigestible substance in the intestines; suppression of the bowels; alcoholic intoxication; acute diseases, as variola, typhus and inflammation of the Stomach.

The cause of Triersus Ascendens, a variety of tetanus met with in very young infants, is said to be irritation of the intestinal canal, caused by the detention of meconium and by the presence of worms and unnatural
secretions. It is maintained by Watson, of Nashville, that neglecting to properly attend to the micturition is the cause of almost every case, and that, if the urine is kept as it should be and cleanliness preserved in all dressings, etc., this will be almost certain immunity secured.

Males, it is said, are more frequently and severely attacked than females. Persons exposed to very warm situations acquire a predisposition to urines: the same may be said of humid places, but food, close rooms, filthiness, and neglect of the bowels.

We are now led to speak of the prognosis of this disease, which is arrived at after considering the cause and type of the attack. If the attack proceed from mechanical
injuries or, in other words, if we have the traumatic species, we may generally expect a fatal issue. If we have a case of idiopathic tetanis there is a greater probability of recovery. In the division acutus and chronicus, we may state upon the authority of Dr. Dickson, of Charleston, that the patient seldom if ever recovers from an attack of the former, while it is not an unusual thing for him to survive an attack of the latter.

In considering the diagnosis, we find tetanis resembling in many points, coma. It resembles strikingly hydrophobia. Again it is often very much like hysteria. There are affections proceeding from local inflammation often mistaken for tetanis. The effect of certain poisons is similar
to Icterus. Thus for finding Arz Dromica, Strychnine, Hyoscymus, Corrosive Sublimae, Belladonna, Atropinum and Coccus Indicus presents to the transient observer, a train of symptoms that lead him to declare that the case before him is Icterus. In order to diagnosticise properly and correctly in each of these cases, we must study the history of the case—regarding each symptom by itself, then all the symptoms together.

The period of accession depends on the cause. If mechanic injuries be the cause, the attack generally supervenes before the seventh day. When originating from any other cause, it hardly ever delays its appearance more than thirty-six hours.

In the post mortem examination of
These cases, then, is little of interest to be met with. In a case reported by Smead, examined by Bonitus - it is said, "The ventricles of the brain were filled with a certain viscid and glutinous matter, a little fortié and resembling the yellow of an egg." "This," says Bonitus, "produced compresion, the most symptoms of which were seen in the neighboring parts." "The meningae media, on either side, was firm;" bilious ascension in the recorded autopsy of each case then appears to be some arrangements in the cerebral organs.

The spinal cord presents, in almost every case, an abnormal appearance. The Pharynx and Aesophagus are constricted and contracted.

The stomach and intestines appear to
have been subjected to great irritation, presenting inflamed and mottling surfaces internally.

The treatment of this disease is divided into local and constitutional. The intention of the physician, in the application of local remedies, is to do away with the irritation that is the cause of the Titanic condition. But in many cases the removal of the cause does not affect the progress of the disease. For when the Titanic excitement is once established it has a tendency to continue, notwithstanding the removal of the cause. But we should remove the cause in every case, as to give full play to the constitutional remedies given. In the Dramatic species we
shoulds always for the wound of every foreign or irritating substance. Then if there is a more injured it should be divided between the wound and the cord. The wound, if not doing well, should be provided with some like substance. Erichsen says that it would be advisable, when no particular nerve is injured, to incise the wound by a V-shaped incision above the wound, carried to the bone. Then some solution of atropine may be applied to allay the irritation.

As to the constitutional remedies, we will consider them singly and give the opinions of the writers on each. We will first look at Blood-letting; the advantages to be gained by the use of this remedy are not apparent.
When we consider that death is the consequence of the exhaustion and debility of the patient, we would be guilty of great folly if we were to take away the very principle that sustains him. It is true that, when fever supervenes and the wound is greatly inflamed, we might, with propriety, resort to bleeding from the arm and enfeebling along the vein. But we should be careful never to bend to syncope, as the patient, in all probability, would soon recover from it.

Mercury. This may be given in cases where bleeding is advisable, in doses of three grains every 2d. or 3d. hours.

Tarbat Emétique may be given in nauseating doses, in the same cases.

Purgatives are always indicated.
When the alimentary canal is diseased or the patient is affected by dysentery, ulcer, etc. But when this is not the case, we should give, when the attack first makes its appearance, an active cathartic, as the bowels are, usually, obstinately, constipated and because there may be foreign matter in the bowels that may be the exciting cause.

Strychnine is said to be one of our most useful remedies in Tetanus. It is administered per annum, four ounces at a time, of the strength of 7i. to 8i. water, repeated two or three times daily.

Cold may be applied in Chronic Tetanus, but it is very dangerous in the acute form.

Tonics are recommended to counteract debility, and we find the use of the
Mineral mixture of iron, iron, and wine, in large quantities, to be highly advantageous.

Opium: The use of this article is advocated by some, deprecated by others. While it recommends it in cases where there is a painful wound and great weakness, he prefers administering it by blistering and sprinkling a grain of Acetate of Morphine upon the wound's surface. If given internally it should be in large doses in the liquid form.

The resin of Cannabis indica has been recommended in doses of 3 grains every half hour.

The Cymannel of Podaca has been recommended by Dr. Eve, given in large doses. This operates beneficially, says Dr. Eve.

Several cases of this disease have been
curd by the use of large quantities of esoteric liquor.

We are recommended, in different places, all or nearly all of the Antispasmodics, Camphor, Musk, Ether, Chloroform, Castor, the warm bath, Asafoetida, and also Urea, Monium, Belladonna, and Digitalis.

If a case was presented to us, if of the traumatic species, we should follow the plan of treatment recommended by Professor Eu. He advises insulating of the wound by the X shaped incision of Liston. He, moreover, advises the more complicated insulating of the wound by the application of the ligature around the limb, above the wound, when the wound is on either extremity. This last recommendation, one do not think, is to be found in the works on surgery. As it seems to
reasonable, and as it is recommended by Dr. Eve, we should certainly adopt it if called to treat this variety of disease. In the idiopathic form we should first induce the bowels of the patient by giving Croton oil, Terebinthine, &c.

Meeting the symptoms of inflammatory action with antiphlogistic remedies we should proceed on hopes of the recovery of the patient, principally upon the use of Chloroform. Still to this point we should place greatest reliance upon narcotics.

Nourishing diet is of great importance to the patient. Wine, but few, &c., should be given for a time if it cannot be given through the mouth. Indeed the majority of medicines, food &c. have to be administered through the skin.
or her aunt. The patient must be kept in mental and physical repose. If, after all we have done to cure the patient we fail, then our object should be to alleviate the awful sufferings that afflict him. And it is wise if we can retire from his bedside chided, though our hearts be heavy, with sadness, with the conscious sense of having done our duty. And uttering a prayer for his soul's safety and leaving it to the mercy of a Great God, we can convey his body to the bridal grave without a feeling of regret.